Notice of Allowability	Application No.	Applicant(s)	
	10/575,966	IURA ET AL.	
	Examiner	Art Unit	
	Eduardo Colon Santana	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.

2. ☒ The allowed claim(s) is/are *1-20*.

3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 4/14/2006
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

LINCOLN DONOVAN
SUPERVISORY PATENT EXAMINER

Eduardo Colon
Patent Examiner

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 4/14/2006 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

3. The replacement sheets of drawings were received on 1/29/2007. These replacement sheets of drawings are acceptable.

Allowable Subject Matter

4. Claims 1-20 are allowed.

5. The following is an examiner's statement of reasons for allowance:

Claims 1, 4, 13 and 15: In view of the limitations, the prior art does not disclosed alone or in combination a control device and method for an AC motor having a power converter unit, wherein the control device includes a power failure detecting unit that detects a power failure of the AC power source; a unit that outputs a deceleration start instruction to an inverter unit in response to a power failure signal and then calculates a first reduction rate, such that the DC intermediate voltage is made constant during the deceleration of the AC motor and calculates a second reduction rate; a unit which controls

a deceleration time by controlling the value obtained by multiplying the two reduction rates together in a PI controller; a unit which stops the deceleration when the DC intermediate voltage is equal to a voltage before the power failure is detected or it rises during the deceleration and a unit which stores an output frequency before the power failure is detected when the AC motor is returned to a normal control mode.

Claims 7, 10, 17 and 19: In view of the limitations, the prior art does not disclosed alone or in combination the same limitation of claims 1 and 4 above and in addition a control device that sets an electromotive torque limit value and regenerative torque limit value in advance; restricting the torque instruction with the torque limit values; setting a lower limit voltage V_{U1} of the DC intermediate voltage required for a normal driving mode, setting a lower allowable voltage V_{U0} of the DC intermediate voltage when the lowest voltage of a power supply is input, and setting a power failure detecting level voltage V_{U2} which is lower than the lower allowable voltage V_{U0} and is higher than the lower limit voltage V_{U1}. When a detection value of the DC intermediate voltage output is lower than the power failure detecting level voltage, decelerating the AC motor at a reduce rate until the DC intermediate voltage is higher than the lower allowable voltage; and when the DC intermediate voltage is higher than the lower allowable voltage, return the AC motor to a normal control mode and store an output frequency before the power failure is detected.

The related prior art references disclosed in form 892 and 1449 describe various methods and control devices for controlling an AC motor, when a power failure is detected, in addition to output stop detection signals when a power failure is detected. However, there is no teaching or suggestion to combine the prior art to set an electromotive torque limit value and a regenerative torque limit value in advance of a power failure detection, wherein a control device after detecting a power failure outputs a deceleration start instruction and calculated a first and second reduction rate on the basis of a detection value and a target value of a DC intermediate voltage and calculates a torque instruction that changes the torque limit value and the regenerative torque limit value to allow the AC motor to be decelerated for a deceleration time that is obtained by multiplying the two reduction rates together in a proportional integrate manner. In addition to setting a lower limit voltage V_{U1} of the DC intermediate voltage required for a normal driving mode, setting a lower allowable voltage V_{U0} of the DC intermediate voltage when the lowest voltage of a power supply is input, and setting a power failure detecting level voltage V_{U2} which is lower than the lower allowable voltage V_{U0} and is higher than the lower limit voltage V_{U1}.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eduardo Colon Santana whose telephone number is (571) 272-2060. The examiner can normally be reached on Monday thru Thursday 6:30am - 3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-2800 X.37. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eduardo Colon Santana
Patent Examiner
Art Unit 2837

/ECS/
August 18, 2007

LINCOLN DONOVAN
SUPERVISORY PATENT EXAMINER